ECHINOCARIS PUNCTATA (HALL) FROM THE HAMILTON GROUP, THEDFORD, ONTARIO[1]

JAMES L. MURPHY

Case Western Reserve University, Cleveland, Ohio 44106

ABSTRACT

Two unaccessioned and previously undescribed specimens of *Echinocaris punctata* (Hall) have been discovered in the Hyde Collection, Department of Geology, Case Western Reserve University. These specimens are the first representatives of this diagnostic Hamilton species to be reported from the Middle Devonian of Ontario.

INTRODUCTION

In examining the remnants of the Jesse and Eber Hyde invertebrate collection housed in the Department of Geology, Case Western Reserve University, Cleveland, two uncatalogued specimens of *Echinocaris punctata* (Hall) have been discovered. These are of particular interest, for this characteristic Hamilton species has previously been reported only from New York (Hall, 1863; Hall and Clarke, 1888), from the Silica Shale of northwestern Ohio (Stumm and Chilman, 1969), and possibly from the Middle Devonian of Wisconsin (Cleland, 1911). The species is not included in the thorough check list of Middle Devonian invertebrates from the Thedford region compiled by Stumm and Wright (1958).

The two specimens are illustrated in Figures 1 and 2. They were found in the same tray, with two accompanying labels. The label presumed to belong to the specimen shown in Figure 1 reads as follows, in Jesse Hyde's handwriting, "*Echinocaris punctatus*? Hall/Hamilton/about 3 miles from Thedford/2½ miles above Widder/Thedford Canada/Larger specimen in Drawer/with Helderberg fossils. N.Y." The second label merely gives the horizon and locality as "Hamilton/Thedford/Canada." The departmental collections are not currently arranged by stratigraphic formation, and it appears that the two specimens were placed in the same tray whenever stratigraphic arrangement of the collections was discontinued.

DESCRIPTION

Examination of the specimens leaves no doubt about the correctness of Hyde's identification. Both specimens compare very closely with conspecific material described by Stumm and Chilman (1969) and by Hall and Clarke (1888). The Ontario specimens do not, unfortunately, contribute any new morphologic information about the species. On the larger Hyde specimen, only the underside of the organism is exposed, including much of the telson and abdominal area. The anterior portion of the carapace is lacking, and parts of the remainder of the carapace are covered with matrix. The delicate nature of the specimen made attempts to remove additional matrix ill-advised. There is no trace of the mandibles. The concave trace of the lateral sigmoid ridge, and the raised trace of the posterior limbs of the medial sulcus are apparent, as are faint impressions of the fine surface ornamentation.

Only three (numbers 4 through 6) of the six abdominal somites are well preserved. Somite 4 is unusual in displaying a small elongate node on the central portion of the ventral surface, a short distance posterior of the center. The lateral spines at the posterior end of each somite and the anterior lateral nodes are well shown on the three posterior somites. The caudal plate is well preserved,

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agreeing in every detail with that illustrated by Hall and Clarke (1888, pl. 28, fig. 7).

Maximum length of this specimen is estimated at 13.5 cm. This is only approximate, as the anterior portion of the carapace is absent; actual length of the carapace from the front of the medial sulcus to the posterior margin is 43.0 mm, while the lengths of the posterior three abdominal somites (4, 5, and 6) are 9.3, 11.4, and 13.8 mm, respectively. This specimen is somewhat larger than the

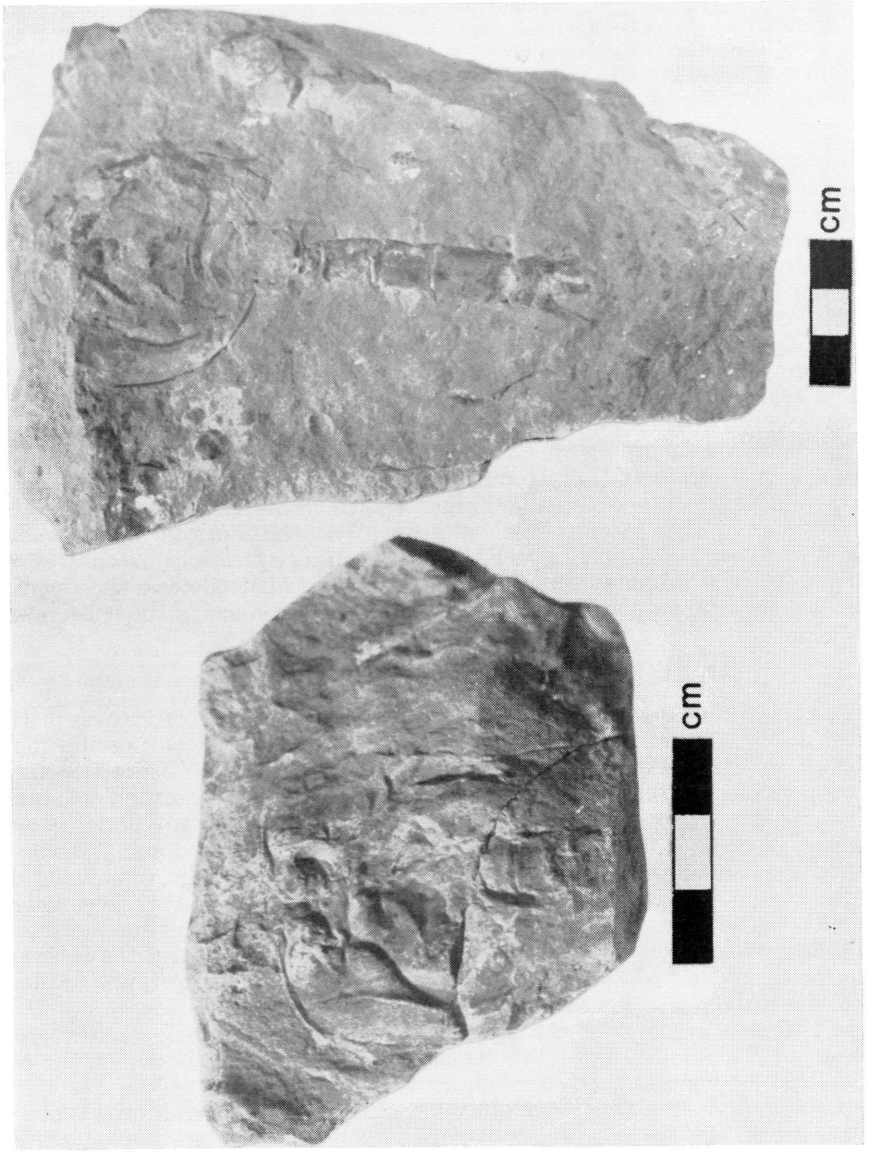

FIGURE 1. (Left) *Echinocaris punctata* (Hall), Hamilton Group, near Thedford, Ontario. USNM 170562, ×1.

FIGURE 2. (Right) A larger specimen, from the same locality, USNM 170561, ×2/3.

average specimen described from New York, but falls well within the range in size given by Hall and Clarke (1888). It is notably larger than either of the two complete specimens described from the Silica Shale of northwestern Ohio (Stumm and Chilman, 1969, p. 66).

The size of the second specimen from Ontario is a little smaller; the carapace is less than 40 mm in length. Features of the carapace, including the finely granular surface ornamentation, are generally well preserved. Relatively minor features, such as the anterodorsal nodes, are discernible. The first two abdominal somites are preserved, but these are partly imbedded in matrix and are not measurable.

DISCUSSION

The Hamilton Group of the Ontario region is currently (Wright and Wright, 1961) divided, in ascending order, into the Arkona Shale, the Hungry Hollow and Widder Formations, and the Ipperwash Limestone. Judging from the lithology of the matrix (gray calcareous shale or argillaceous limestone) and the associated fossils (listed below), it is unlikely that the phyllocarid specimens came from either the Arkona Shale or the Ipperwash Limestone. Identifiable invertebrates associated with the phyllocarids include *Greenops boothi* (Green), *Ponderodictya punctulifera* (Hall), *Tornoceras uniangulare* (Conrad), "*Chonetes*" *lepida* Hall, and *Styliolina fissurella* (Hall). Associated plant remains include *Tasmanites* sp. None of these fossils is restricted to either the Widder Formation or the Hungry Hollow Formation. The presence of *Greenops boothi*, as opposed to *G. arkonensis* Stumm, may eliminate the Arkona Shale from consideration, though identification of the isolated pygidium associated with the larger phyllocarid is somewhat uncertain at the species level. On the basis of lithology, a Widder provenience seems more probable. The description of the locality, vague though it is, suggests that the specimens came from outcrops along the Ausable River at or near "Number 4 Hill," which has been designated the lectotype section for the Widder Formation (Wright and Wright, 1961). This well-known outcrop, however, is about four miles from Thedford and at least three miles above Widder. Both the Hungry Hollow and the overlying Widder Formation, as well as the top of the underlying Arkona Shale, are exposed here, so that the precise provenience of these *Echinocaris* specimens must remain uncertain.

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